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**STUDENT RESEARCH REPORT**

LTC JOSEPH D. DYE

SOVIET BMD EQUIPPED AIRBORNE FORCES

-1978-

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**SOVIET BMD EQUIPPED AIRBORNE FORCES**

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LTC.	USA

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## FOREWORD

This research project represents fulfillment of a student requirement for successful completion of the overseas phase of training of the Department of the Army's Foreign Area Officer Program (Russian).

Only unclassified sources are used in producing the research paper. The opinions, value judgements and conclusions expressed are those of the author and in no way reflect official policy of the United States Government; Department of Defense; Department of the Army; Office of the Assistant Chief of Staff of Intelligence; or the United States Army Institute for Advanced Russian and East European Studies.

Interested readers are invited to send their comments to the Commander of the Institute.



ROLAND LAJOIE  
LTC, MI  
Commander

#### SUMMARY

↙  
The introduction of the BMD to Soviet airborne units has provided Soviet military planners with a force which is capable of the projection of meaningful military power beyond the borders of the Soviet Union. The added firepower and mobility provided by this vehicle makes BMD equipped Soviet airborne forces the most potent strike force of its type in the world. In both a general and limited war situation these forces pose a serious threat to NATO. ↘

## INTRODUCTION

Parachuting...that is one field of aviation in which the Soviet Union holds a monopoly. There is no country in the world which could say that it even approximately compares to the Soviet Union.....<sup>1</sup>

K. E. Voroshilov  
Marshal of the Soviet Union  
Peoples Commissar of Defense  
1936

Some 37 years later Marshal Voroshilov's prophecy seemed to echo in the comments of Hero of the Soviet Union, General of the Army V. F. Margelov, commander of the 50,000 man Soviet airborne forces:

In modern highly maneuverable warfare it is difficult to imagine any significant operation without the participation of paratroopers. It is fortuitous [sic] therefore that close attention is given to developing and perfecting the airborne troops. Our airborne troops have been provided with the most up-to-date combat equipment and are capable of tackling a wide range of complex missions.<sup>2</sup>

As if to add emphasis to General Margelov's comments, six months later the first BMDs (Boevaya Mashina Desantnaya) were observed in Red Square during the 1973 parade commemorating the October Revolution. True to the general's promise, the BMD provides the Soviet airborne with a quantum improvement in firepower and mobility. Even more important, the introduction of the BMD significantly increases the Soviet airborne's survivability against its age old nemesis, the tank. It seems a paradox, at a time when most Western countries are critically examining the validity of the airborne tactic and in most cases are either reducing or discarding it, the Soviets should introduce the most sophisticated airborne infantry



fighting vehicle in the world.

An equally puzzling question for some, has been the Soviet propensity toward maintaining the largest airborne force in the world. Graham Turbiville has postulated that the Soviet preoccupation with large airborne forces springs from the frustrations of the late 1950s and early 1960s, when they lacked the ability to project meaningful military power.<sup>3</sup> He sees the airborne as a part of the equation for the projection of Soviet military power abroad, which is shared by the Navy and the rejuvenated Marine Corps. Whatever the rationale the Soviet airborne equipped with the BMD is probably the most combat effective force of its type in the world today.

Although some rumblings have surfaced in the Soviet military press about the viability of pure airborne forces in the face of developing airmobile concepts in the West, the Soviet airborne lobby seems well entrenched.<sup>4</sup> If this is in fact the case, the continued priority for this elite force seems assured for the foreseeable future.

This paper will deal with the historical evolution of Soviet airborne fighting vehicles, the characteristics of the BMD, the organization of BMD equipped units, and their employment.

### HISTORICAL EVOLUTION OF SOVIET AIRBORNE FIGHTING VEHICLES

Light armored vehicles have historically been an important element of the Soviet airborne force since its birth in the 1920s. The D-8 armored car (a model A Ford with armor plate) was probably the first link in the evolutionary process that resulted in the BMD in the 1970s. As early as the 1930s the Soviets were experimenting with airland techniques of heavy equipment in support of airborne forces. The Tupolev TB-3 aircraft was initially used for this purpose. Such items of equipment as the D-8 armored car, 76mm guns, light trucks, and motor cycles with side cars were lashed to the belly of the TB-3 for air land delivery to airborne forces.<sup>5</sup> In 1934 during military maneuvers a parachute assault of 1200 paratroopers was followed by the airlanding of 2500 paratroopers with tanks and artillery.<sup>6</sup> Although the source does not specify the type of tank, in all probability they were the T-27 tankette.

The T-27 tankette, a product of the 1931-32 Soviet tank program, was based on the British Carden-Loyd design. The tankette mounted a 7.62mm aircraft machine gun and carried a crew of two.<sup>7</sup> This tank was designed for cavalry units as a reconnaissance vehicle, but was also tested in an airborne support role during maneuvers in 1934 and again in 1937.<sup>8</sup>

The next increment in the Soviet design evolution of light tanks with a possible airborne role was the light amphibious tank T37/38.<sup>9</sup> The T38 was a product improvement of the T37 which was based upon the British 8 Vickers-Carden-Loyd light amphibious tank. Swim capabilities were dependent upon a simple propeller and rudder system. Extensive use of balsa-wood floats provided additional buoyancy to the watertight hull. The main armament of the T-38 was provided by a 7.62mm machinegun. Although not specifically designed for airborne forces, the T-38 was airlifted beneath the fuselage of an ANT-6 into an airborne maneuver in 1936.<sup>10</sup> A T-60 light tank mounting a high-velocity 20mm SchVak aircraft machinegun with a 7.62mm coaxial machinegun was transported in a similar configuration to an airborne maneuver in 1941.<sup>11</sup> At the end of World War II the airborne brigade may have had twenty T-37 tanks and ten BA-64 armored cars.<sup>12</sup>

Between 1945 and 1950, the Soviets, still in search of a successful light tank design, attempted the production of a light airborne tank. The T-34 light airborne tank was the first tank produced with an exclusive airborne role in mind, but only entered limited production because of its poor cross-country mobility, which was due to only three road wheels per side.<sup>13</sup>

In 1952 the PT-76, a light amphibious tank, was introduced.<sup>14</sup> This 14-ton vehicle was designed primarily for a reconnaissance role and therefore was fitted with a 76mm main gun and light armor. Excellent swim capabilities were provided by a twin jet water propulsion system.<sup>15</sup> Although there is a lack of hard evidence, much speculation has been made about the possible use of this vehicle in an airland mode by airborne forces.<sup>16</sup> This position seems tenable if one takes an evolutionary view of Soviet light tank development.

The first airdroppable airborne fighting vehicle was the ASU-57 (Aviadesantnaia Samakhodnaia Ustanovka) which was first viewed on May Day 1957.<sup>17</sup> There is some reason to believe this vehicle may have been present in airborne units as early as 1949.<sup>18</sup> The vehicle, a light-weight chassis (3.35 tons) of new design, mounted a modified 57mm gun. It was assigned on the basis of three companies (ten vehicles each) to the antitank battalion of the airborne division.<sup>19</sup> This vehicle for the first time gave Soviet airborne forces a light armored combat vehicle to accompany parachute assault elements. The added firepower and increased mobility (capable of carrying a squad) provided by this vehicle, significantly enhances the combat effectiveness and survivability of Soviet airborne forces during the most critical stage of the initial assault operations.

Additional combat punch was added by the introduction of the ASU-85 in 1962. The ASU-85 employed the chassis and other components of the PT-76.<sup>20</sup> Mounting an 85mm gun, the ASU-85 is capable of delivery in an airland mode only, but does significantly contribute to the survivability of the airborne force once the airhead is established. Soviet priorities are clear in the development of the ASU systems, that is, to effectively protect the airborne from attack by enemy tanks and at the same time provide an extremely effective offensive weapons system.



It seems reasonable to conclude that the introduction of the BMD in 1973 represents an evolutionary process which began almost five decades ago. Much of the systems design can be assumed to be similar to that used in the BMP (Boevaya Mashina Pekhoty). Although both these vehicles were designed to meet the envisioned nuclear battlefield of the 1960s, they represent some of the most advanced deployed technology in infantry combat fighting vehicles in the world.

#### CHARACTERISTICS OF THE BMD

The BMD is powered by a 280 horsepower, six cylinder diesel engine, which gives the vehicle a maximum speed of approximately 65 Kms per hour and a cruising range of 400 Kms.<sup>21</sup> The BMD has an internal CBR filtration system, which protects the crew and passengers when operating in a CBR environment (See Appendixes 1 and 2).<sup>22</sup> The BMD has a better swim capability than the BMP, because it uses a twin hydro-jet system similar to the PT-76 (See Appendix 3). This system should give the BMD a swim speed of 10 Km/H.<sup>23</sup> Light armor protection allowed the weight to be kept at about 8-9 tons, but like the BMP, the BMD has no rear entry doors; exit must be accomplished from hatches in the top of the hull (See Appendix 2). The BMD is equipped with an infrared searchlight, a periscope and colored formation lights. Crew members have an intercom system and vehicular mounted radios provide communications with other vehicles and in the case of command vehicles with higher headquarters.

The vehicle crew consists of a mechanic-driver and a gunner. A six man rifle squad rides as passengers in the vehicle.<sup>25</sup> The squad leader (vehicle commander) and one squad soldier ride in the forward compartments in front of the turret and the remaining four squad members ride in the rear (See Appendix 2). Squad members in the rear probably sit back-to-back on adjustable seats facing the "outboard" sides of the vehicle similar to the seating arrangement in the BMP. The size of the vehicle (length 5.12m, width 2.61m, and height 1.85m) dictates that these are extremely cramped quarters. It would therefore follow that the fully buttoned-up configuration is only assumed while passing through contaminated areas and during mounted assaults on attack objectives. Vehicle dimensions were obviously influenced by cargo door and compartment dimensions of existing or projected lift aircraft. Similar to the BMP, each of the squad members in the rear of the vehicle has an airtight firing port into which he securely

locks his weapon. One front-angled vision block on each side of the vehicle, which is centered between the firing ports, provides a shared means of observation (See Appendix 2). Additionally, there is a small vision port above the barrel of the weapon. The vision blocks are very likely equipped with defoggers for operation in cold weather. An exhaust system and a small bag attached to each weapon to dispense with fumes and collect spent brass is also likely to be present.

The BMD is fitted with the same turret as the BMP-73PD.<sup>26</sup> The main armament is the 73mm low pressure, automatically loaded, smoothbore gun mounted in a small conical turret. The 73mm gun fires a fin-stabilized HEAT round which can penetrate most medium tanks at 1000 meters. Basic load is approximately 30 rounds. To the right of the main gun is the 7.62mm coaxially mounted machinegun with an effective range of 1000 meters. Above the gun is the launch rail for the SAGGER wire-guided antitank missile. Each BMD probably like the BMP carries four to five missiles. When the vehicle is halted the SAGGER has a hit probability of greater than 80%, against stationary targets at a range of 1000 to 3000 meters.<sup>27</sup> Hit probability drops drastically at ranges below 1000 meters, because of the gunner requirement to gain a visual signature of the weapon, so he can guide it to the target. The 73mm gun covers this space adequately. These two weapons systems make the BMD a lethal tank killer out to 3000 meters. A unique feature of the BMD is the presence of two low mounted 7.62mm machineguns. Although probably having limited traverse and elevation capabilities, these guns provide an extremely effective means of delivering suppressive fires to the front. When the squad is mounted these guns are probably fired by the two squad members seated in the front of the vehicle. It is likely that when the squad is dismounted the firing of the bow guns is assumed through a remote control system by the driver or gunner.

There have been several modifications made to the BMD since its initial deployment. The early models were equipped with a visible air-filtration intake similar to the BMP.<sup>28</sup> A later variant appeared without the intake (See Appendix 2).<sup>29</sup> What appears to be the latest model has a modified exhaust port whose rectangular shape was changed to a circular configuration with a spout.<sup>30</sup> These modifications seem to be merely a function of the product improvement approach the Soviets take to R&D. These changes may account for the use of the terms BMD and BMD-1 in Soviet military literature.

The BMD is the most advanced deployed airborne fighting vehicle in the world. It enhances the Soviet airborne's capability to perform assigned general war missions and adds a powerful factor to any possible intervention role. The armament of this vehicle when compared to Western infantry combat vehicles (ICVs), is at least equal to or is in some cases superior. Additionally, the BMD's low silhouette (1.85m) compared to the Western ICVs (West German Marder 2.95m, the French AMX 10P 2.54m, the US Army's M113 2.69m, and the MICV 2.8m) provides an extremely effective weapons platform which makes a relatively small target on the battlefield.

#### ORGANIZATION OF BMD EQUIPPED UNITS

"New combat methods caused by new types of weapons have had a direct effect on the organizational structure and on a building of the Armed Forces."

Marshal Sokolovsky  
Military Strategy  
Third Edition

Soviet airborne forces are composed of three distinct elements: desantniki, reidoviki, and vysotniki.<sup>31</sup> The blue bereted desantniki, the lowest of the elite, are conventional airborne soldiers organized into eight divisions.<sup>32</sup> The reidoviki (raiders) are trained to operate behind enemy lines in long range commando operations. These elements are lightly equipped and are organized into brigade sized units.<sup>33</sup> The vysotniki (high altitude parachutists), the elite of the elite, are specialists in high altitude-low opening (HALO) infiltration techniques. These specialists are trained in intelligence, reconnaissance, and sabotage operations.<sup>34</sup> The actual size and composition of these forces is not clear. This paper will deal solely with the desantniki and in particular those units equipped with the BMD.

The basis of issue for the BMD is assumed to be one regiment per division (eight regiments). This assumption is based on several factors. First, the introduction of the BMD on a division issue basis



would significantly increase airlift requirements. It seems unlikely the Soviets would overtax their limited airlift capabilities by a blanket issue to all divisions.<sup>35</sup> The second factor is the possibility that the Soviets have produced less than a thousand of the vehicles in over four years of production.<sup>36</sup> Computing regimental BMD requirements at approximately 107 vehicles, the figure for the eight BMD regiments plus spare or float vehicles (15%) approximates 1000 BMDs.<sup>37</sup> A third factor is the concern both on the part of the Soviets and United States, that due to the growing intensity of the air defense screens over the modern battlefield, initial assaults by larger than regimental (brigade) sized units may be impractical.<sup>38</sup>

For the purpose of reaching an organization for the regiment and its subunits it is further assumed that vehicle drivers and gunners are assigned to the maneuver unit being discussed and not assigned to a separate transportation unit.

#### THE SQUAD

The size of the BMD squad is obviously dictated by the crew and passenger capability of the vehicle (two man crew and six squad members).<sup>39</sup> The dismount party (six men) is armed with four AKMSs, one RPG-7, and one PKM light machinegun. In some cases, depending upon which squad within the platoon it is, two of the AKMSs are exchanged for one SA-7 and one SVD sniper rifle (See Appendix 4).<sup>40</sup>

#### THE PLATOON

The platoon is composed of three rifle squads (three BMDs) and the platoon headquarters (one officer and one NCO). The platoon leader rides in the 1st squad vehicle and the platoon sergeant in the 3rd squad vehicle. The platoon has a total strength of one officer, four NCOs (one of which is the platoon sergeant) and 19 enlisted men (six of which are BMD crew). This gives the platoon a dismount party of 18.<sup>41</sup> The vehicle driver/mechanics and the gunner-operators remain with the vehicle during dismounted operations.<sup>42</sup> The duties and weapons carried by each platoon member is shown in Appendix 4.<sup>43</sup>

### THE COMPANY

The company is composed of three platoons (nine BMDs) and a company headquarters (one BMD). The company is fully mobile in the 10 BMDs. Although these 10 vehicles only provide seats for 80 personnel, it is assumed as in the BMP Company that the 1st Sergeant and the Rear Service Officer remain at the battalion headquarters when the company is deployed.<sup>44</sup> This arrangement releases two seats in the company commander's vehicle; it then seems reasonable to assume one of these seats is occupied by the company medic and the other seat by a radio/telephone operator. The SA-7 gunners (total of three for the company) are found in the 3d Squad of each platoon.<sup>45</sup> (See Appendices 4 and 5).

### THE BATTALION

The BMD battalion is composed of a battalion headquarters, three airborne rifle companies, a mortar battery, possibly a composite SAGGER/SPG-9 recoilless gun anti-tank platoon, a signal platoon, a medical section, and a supply and maintenance platoon.<sup>46</sup> Although the component parts of the airborne battalion are generally agreed upon, there is significant disparity on the size of these elements. The strength figures for these elements have therefore been interpolated from various sources both for BMP equipped units and non-BMD equipped airborne units.<sup>47</sup> For additional information on the organization, strength, and weapons of the battalion see Appendix 6.

### THE REGIMENT

The BMD regiment is composed of a headquarters section, three airborne rifle battalions, a mortar battery (six 120mm mortars), two antiaircraft batteries (four ZU-23-2s and four SA-9s), an anti-tank battery, an engineer company, a signal company, a chemical defense company, a medical company, a maintenance company, a supply and services platoon, motor transport company, and presumably a reconnaissance company.<sup>48</sup> If the BMD regiment is to act as the assault element of the division as its presence would suggest, it seems logical that a reconnaissance element would be an organic part of the regiment. Some sources contend that an assault gun company (18 ASU-57s) is also present but this seems unlikely in the BMD regiment because of the duplicity between the two weapon systems (e.g., ASU-57 and BMD)<sup>49</sup>.

It is even suggested that the BMD will ultimately replace the ASU-57 (See Appendix 7).<sup>50</sup>

#### THE DIVISION

Although this paper only deals with the organization up to and including the BMD regiment, the airborne division is presented to provide an appreciation of the type of support available to the organic regiment (See Appendix 8). Often BMD assault battalions are augmented with a battery of 122mm Howitzers, an anti-aircraft platoon and a platoon of engineers.



### COMMAND AND CONTROL

There seems to be some difference of opinion among Western analysts as to the command relationship of the Soviet airborne forces (Vozdushno Desantnie Voiska (VDV) to the Ministry of Defense (MOD). Some analysts contend that VDV is subordinate to Soviet Ground Forces Command.<sup>51</sup> Such a subordination would place the Commander of VDV in a situation where he would be required to go through two intermediate headquarters before reaching MOD. The other school of thought places VDV directly subordinate to MOD.<sup>52</sup> This latter scheme seems more reasonable, especially in view of VDV's strategic role. This relationship would also hold during a general war situation although some of the airborne divisions might be attached to various front headquarters.

Assuming VDV is directly subordinate to MOD, it then becomes necessary to determine a possible organization of VDV. Initially using CIA's Reference Aid to Personalities in MOD as the starting point, various functions can be identified in the VDV organization.<sup>53</sup> By interpolating from better known staff organizations, other functions can be formulated.<sup>54</sup> Other elements have been added which seem logically necessary due to the unique nature of the organization and its missions. Such elements as marine liaison (for joint operations), Military Transport Aviation (Voenno-transportnaya Aviatsiya (VTA), frontal aviation liaison, and long-range aviation seem essential. Because of the proven close coordination between the KGB and the Soviet airborne elements which participated in the 1968 Czechoslovakian invasion, it seems necessary to include a KGB element in the VDV organization.<sup>55</sup> Based on these considerations and using some "mirror imagery" of our own joint airborne staff organizational doctrine, the wiring diagram shown in Appendix 9 was established.

This organization possesses the required capacity to exert command and control over deployed forces during a limited war or in an intervention. In the general war situation operational control of airborne assets could be passed to the requesting front commanders as required.

### AIRLIFT CAPABILITIES

"They (military transport aviation) have the ability in a few hours to transport large-scale airborne forces with heavy equipment for thousands of kilometers."<sup>56</sup>

General of the Army V.F. Margelov  
Hero of the Soviet Army and  
Commander of the Airborne Troops

Soviet Military Transport Aviation (VTA) has been supporting Soviet airborne forces for over forty years. The quality of this support and the aircraft involved obviously have made dramatic improvements since the days when model "Al" Fords (D-8 armored cars) were lashed to the fuselage of the Tupolev TB-3 aircraft for delivery to airborne forces.

The appearance of the Antonov AN-8 in 1956 was the start of a new generation of assault transport aircraft designed to support airborne forces.<sup>57</sup> Its large rear-loading door allowed internal storage of heavy equipment like the ASU-57 assault gun for subsequent parachute delivery.

The present backbone of the VTA fleet is the AN-12 (Cub) medium transport which was introduced in 1961.<sup>58</sup> There are presently 780 of these aircraft in service.<sup>59</sup> The AN-12 is well suited for the delivery of parachutists (approximately 80) or heavy equipment (two BMDs) and therefore is the primary airlift aircraft for airborne forces (See Appendix 10).

Supplementing the AN-12 is the largest Soviet transport aircraft, the AN-22, which was introduced in 1965. There are presently only 50 of these aircraft in operation. The AN-22's extremely large cargo capacity (80 tons) and its long range (2650 nautical miles) makes a major contribution to the strategic mobility of the airborne forces (see Appendix 10).<sup>60</sup> The AN-22, because of its size and the required over the target time for parachute delivery would be best utilized in the follow-on role as opposed to the initial combat airborne assault.

The newest VTA asset is the Ilyushin IL-76 (similar in design to

the Lockheed C-141 StarLifter). The Candid (its NATO code name) first appeared in the 1971 Paris Airshow.<sup>61</sup> Its lift capability (40 tons) and range (3100 nautical miles) places it mid-way between the AN-12 and AN-22 in capabilities.<sup>62</sup> This aircraft is getting increased press coverage as the airborne's new airlift aircraft. The IL-76 has been reported to be capable of carrying three fully rigged BMDs for airdrop.<sup>63</sup> This publicity is somewhat surprising when one considers there are only 35 of these aircraft in operation.<sup>64</sup> It is, however, very likely that more of these aircraft will be produced because of the termination of production of the AN-12 and the AN-22.<sup>65</sup>

The impact of the introduction of the BMD on VTA's ability to support airborne forces can be gained by looking at the assets required to lift one BMD equipped regiment. This would require 54 AN-12 aircraft for the 107 BMDs of the regiment alone. If it is assumed the BMD crews ride in the same aircraft as their vehicles, the remainder of the regiment's equipment and personnel could be carried in approximately 103 AN-12 aircraft. A total of 157 AN-12 airframes would therefore be required to transport the regiment's personnel, equipment and BMDs (in one lift). Additional airframes would be required to carry the regimental supplies and allowance for spare aircraft would very likely push the total to 200 AN-12 sorties. This figure represents approximately 25% of VTA's possible AN-12 aircraft. The introduction of the BMD has, at least in the one-lift scenario, strained VTA's ability to support large-scale airborne operations especially those of a strategic nature. This situation is made even more complex by the requirement to introduce the remainder of the division into the airhead. These elements would probably be delivered in an airland mode once the airhead is established. The airland mode generally requires less lift because of the absence of the platforms and other rigging materials.

Additional assets available from AEROFLOT could be used to supplement the assault aircraft especially in the airland mode. The ability of VTA to support these operations with its fleet and possible augmentation would certainly be influenced by such imponderables as aircraft availability, the scope of the mission, ability to gain air superiority in the operational area, enemy air defense capabilities, the enemy ground situation, logistics support, and the duration of the operation.



### EMPLOYMENT

"Anyone who was in the area of the Dnepr and Dvina exercises and maneuvers saw what scope the airborne operations achieved, and what great skills and valor distinguished the airborne guardsmen. It took just 22 minutes for the Guards Red Banner Chernigov Airborne Division to land in the designated area and engage in battle during the Dvina maneuvers. Along with the personnel and light weapons, artillery, mortars, combat vehicles, and self-propelled artillery guns were landed on parachutes."<sup>66</sup>

General of the Army V.F. Margelov  
Hero of the Soviet Union  
Commander of Soviet Airborne Forces

Soviet doctrine envisions four categories of employment of airborne forces in a general war situation.

### STRATEGIC

Strategic employments are those airborne operations of at least division strength and which are conducted at considerable depth (probably up to 1000 kms). This type of operation can be designed to establish a new front in a theatre of operations. They can also be conducted to seize airbases, seaports, islands or such "choke points" as the Baltic and Black Sea exits.<sup>68</sup> It is likely those operations conducted in areas contiguous to the sea would be conducted in conjunction with Soviet Marines.

Brigadier Maurice A. J. Tugwell, British Army, writing in the March 1977 issue of Military Review, postulates four interesting strategic employment scenarios for Soviet airborne forces. The first deals with the "swift subjugation of liberal, national tendencies within the Russian Empire." Such operations would be based on the 1968 Prague model. General Tugwell does not rule out the use of such operations against the possible defection of client states in Africa or the Middle East. A second employment in the General's view is a strike at the flanks of NATO. The concept deals with the isolation

of Greece or Turkey from their NATO allies by petty grievances which are aggravated by KGB manipulations. The Soviets offer immediate technical assistance and use this ruse to covertly introduce airborne forces. The last two scenarios deal with a high level of political tension in Europe which the Soviets use to divide and break up NATO. A member nation sensing impending nuclear destruction seeks accommodation with Moscow. The Kremlin in turn insists on the introduction of troops in the form of two airborne divisions to ensure the state's security. The final scenario calls for a conventional air attack to support massive parachute assaults on Brussels and Bonn. In spite of heavy losses, elements of the airborne force link up with Soviet agents and Communist sympathizers who in turn initiate massive insurgency. Although these scenarios may seem "far fetched," they are only made implausible from a political view and not from a lack of capabilities.

Because of the obvious risks involved it seems more likely Soviet intervention in the Middle East as was threatened during the 1973 Yom Kippur War would be more logical especially if the Soviet Union is to become a net importer of oil in the 1980s as the Central Intelligence Agency report indicates.<sup>69</sup> Ensuring the survivability of the Soviet Union in an oil crisis would very likely justify such an intervention. Another possibility worth consideration is intervention to support Euro-communism. In addition there is always the possibility of a superpower confrontation in a low-level conflict in the Third World.<sup>70</sup> The need for additional forces for this type operation has been recognized by US planners as evidenced by requirements to retrain some US forces for "brush fire war."<sup>71</sup> The firepower and mobility of BMD equipped units makes them a likely candidate for the quick projection of meaningful military power in such situations. These units may become even more attractive when compared to the intervention forces presently available to US planners (see Appendix 11).

#### OPERATIONAL

Operational employments are conducted by regimental sized units which operate approximately 300 kilometers in the enemy rear. These deployments are in support of frontal operations and generally require link-up within two to three days.<sup>72</sup> Such operations also may be targeted on tactical airfields, logistics centers, nuclear storage sites, nuclear delivery means, combat service support facilities,

communications centers, and command and control installations. Because these targets are located well to the rear and are defended by lightly armed rear services personnel, the shock effect of attacking BMD units would be great.

### TACTICAL

Tactical employments utilize units of regimental and battalion size. It is possible to amplify this type of employment in more detail because Soviet military writings generally deal with battalion and lower echelons. Tactical employments are conducted to a depth of approximately 100 kilometers and are generally in support of Army level operations.<sup>73</sup> Operations are usually conducted to seize bridges, crossings, road junctions, mountain passes and airfields; to screen the drop zone; to capture and hold terrain; to attack and destroy nuclear weapons storage facilities and firing positions, command and control and radar installations; to block enemy reserves and the withdrawal of enemy forces.<sup>74</sup>

These missions are accomplished by the use of offensive and defensive tactical operations.<sup>75</sup> Two basic concepts for the parachute assault of BMD equipped units are used. They are either dropped directly on the objective or about 5 Kms from it. The battalion usually attacks in two echelons (two companies in the first -- one company in the second) followed by a reserve (at least a platoon) against well-defended objectives.<sup>76</sup> The companies of the battalion when mounted will have platoons deployed in a combat line. When the force is dropped directly on the objective and surprise is achieved, the assault is conducted dismounted with the BMDs following and supporting by fire. Frontal attacks are avoided in preference for envelopment of the flanks and rear. If the objective is lightly defended (lacks effective antitank weapons), the attack will be organized into one echelon with a reserve and conducted mounted using the combat vehicles' firepower and mobility to overrun the objective as quickly as possible. Well-defended objectives with extensive antitank defenses (also in forests, mountains, urban areas, and under conditions of limited visibility) will cause the BMD unit commander to attack dismounted in two echelons with combat vehicles following and supporting by fire.

Defensive operations conducted by BMD units are generally under



enemy pressure and are generally hastily organized. The battalion defense is composed of company sized strong points with extensive use of obstacles, ambushes and counterattacks. Company strong points can be assigned defensive responsibility for frontage of up to one kilometer and a depth of one kilometer. Intervals between company strong points can be up to 1.5 kilometers. The platoons within the company strong points are deployed in an inverted wedge formation with each platoon defending a frontage of 400 meters and to a depth of 300 meters. The intervals with adjacent platoon strong points can be up to 400 meters.<sup>77</sup> All these distances are dependent on terrain, observation and fields of fire, and the tactical situation. The key element of the strong point is the BMD. Primary and alternate firing positions are prepared to include hull defilade and camouflage for the vehicles. Primary and alternate personnel fighting positions are also prepared to provide all-round (perimeter) defense. A barrier system of obstacles is established in the intervals between strong points and on the flanks. Link-up with main ground attack forces generally is planned for within 48 hours.

#### SPECIAL PURPOSE

Special purpose employments are probably conducted by airborne commandos (reidoviki) or HALO (vysozniki) units and not by regular airborne (desantniki) units. Special purpose employments are conducted to accomplish such missions as sabotage, support of partisans, reconnaissance and intelligence, and destruction of command and supply facilities.<sup>78</sup> Because of the nature of the missions and the requirement for secrecy during infiltration these operations are probably conducted by not larger than company sized units.<sup>79</sup>

### CONCLUSIONS

For over four decades the Soviets have been improving their airborne infantry combat fighting vehicles. In the early 1970s this process resulted in the introduction of the BMD. Although the BMD is not without limitations and faults (such as light armor, a relatively inadequate 73mm gun -- wind effect on the round, and mobility problems due to narrow tracks), the Soviets have deployed one of the most advanced combat fighting vehicles in the world today.

From a Western view the appearance of the BMD has provided analysts the first concrete means of determining the basic organization (squad, platoon, company, etc.) of such units. The organization of these BMD equipped units is significantly smaller than those of regular airborne organizations (BMD regiment 1597 vs a regular airborne regiment 2008).<sup>80</sup> The personnel differences are obviously a function of passenger capacity of the vehicle, because the strength figures for combat support and combat service support were held constant.

A lack of airlift assets which crippled large Soviet airborne operations during World War II continues to a much lesser degree today. The Soviets have sufficient lift for two or three divisions. The introduction of the BMD significantly increases airlift requirements. This is somewhat offset by the elimination of the assault gun company at regiment (18 ASU-57s), and the dictated lower personnel strengths of such regiments. There are growing indications the Soviets are striving to improve strategic airlift capabilities both qualitatively and quantitatively.<sup>81</sup>

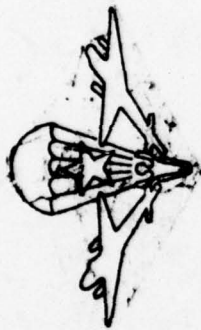
The traditional problem of resupply continues to pose a serious threat to Soviet airborne force employments. This very real problem may have been somewhat alleviated through the training of rear service personnel in the use of captured supplies to include POL.<sup>82</sup>

Once on the ground in the adversary's rear area, BMD equipped forces with their firepower and mobility pose a serious threat to combat elements and ultimate disaster for combat support elements.<sup>83</sup> Their ability to operate in both a conventional and nuclear environment makes them an important factor in Soviet planning for general and limited war operations.

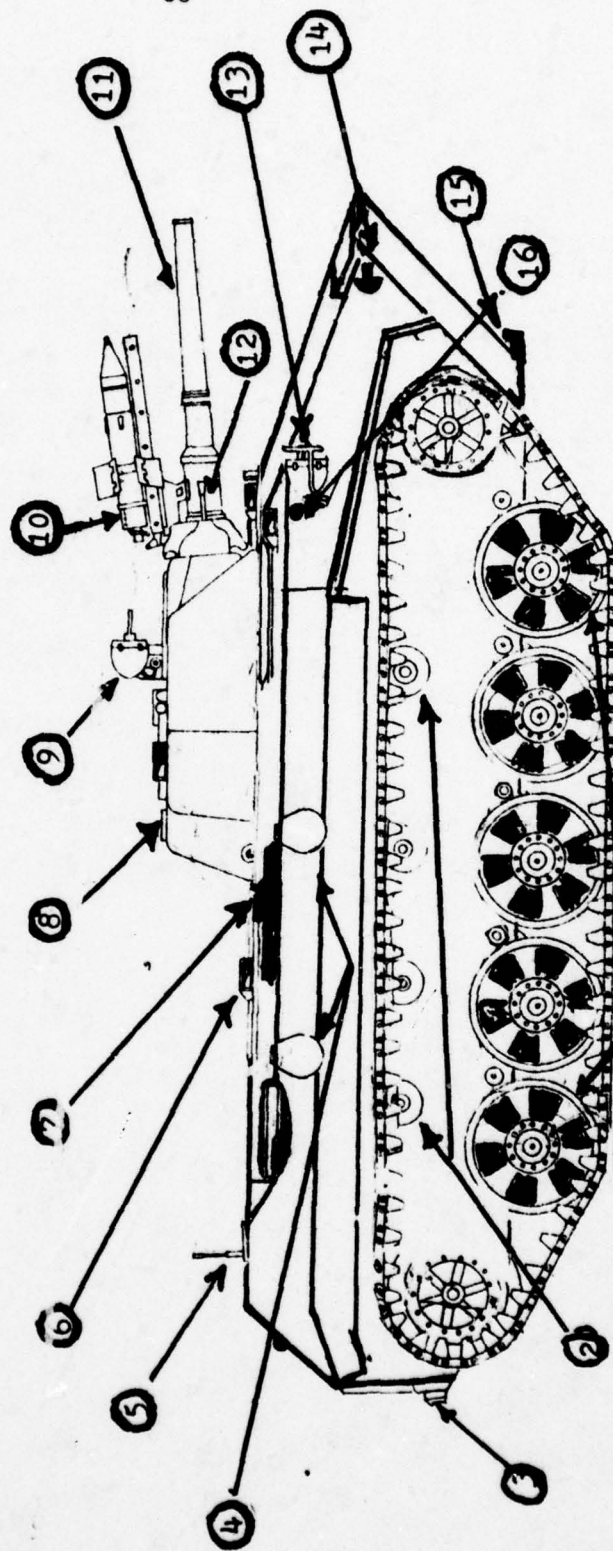
Soviet airborne forces operating in conjunction with Soviet marine landings provides the Kremlin with an important superpower trapping, the ability to project credible military power to most areas of the world.

This Soviet capability could pose some serious consequences for the West in any low-intensity conflicts in the Third World where military intervention either actual or threatened might be considered a politically viable course of action.



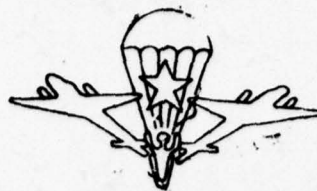


BMD SIDE VIEW (NOT TO SCALE)

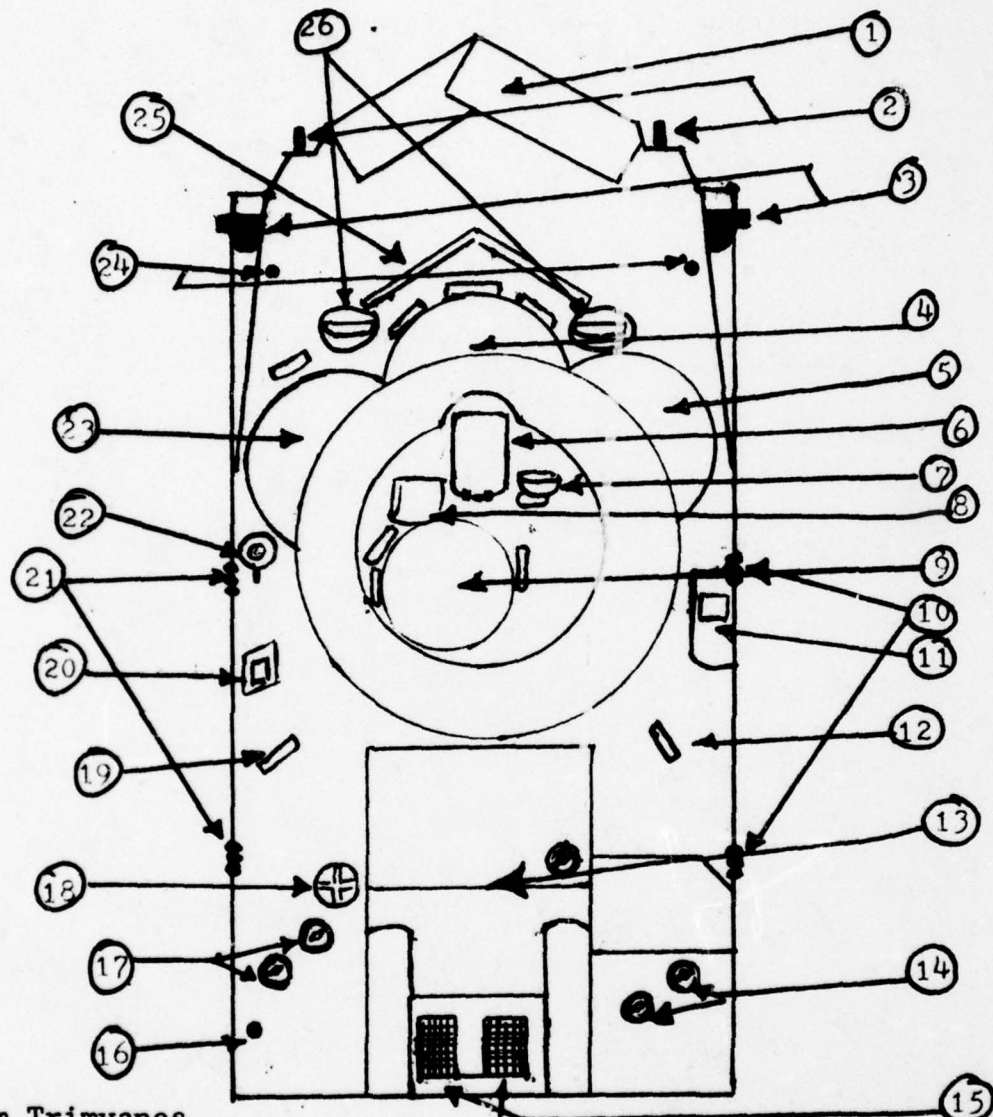


1. Road Wheels (5)
2. Support Rollers (4)
3. Rear Tow Hook
4. Firing Ports (2 each side)
5. Radio Antenna
6. Vision Block for Firing Ports
7. Exhaust/Smoke Port
8. Turret w/Main Armament
9. Dr's Aux IR Light
10. SAGGER AT-3
11. 73mm Gun
12. 7.62mm Coaxial MG
13. Dr's IR Light
14. 7.62mm Bow MGs (one on each side)
15. Tow Hook/Attachment for a Dozer Blade (see footnote #22)
16. Marker Light

# APPENDIX 2, BMD Top View



AUTHOR'S SKETCH OF THE BMD (NOT TO SCALE)



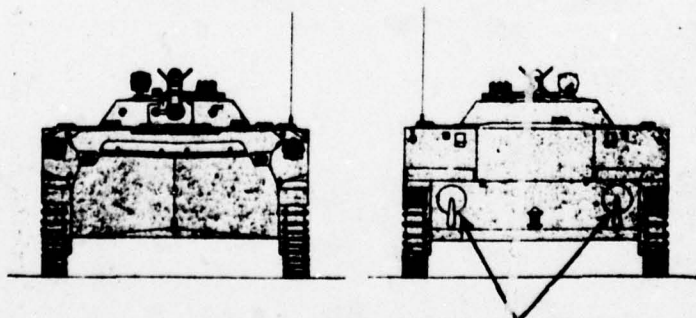
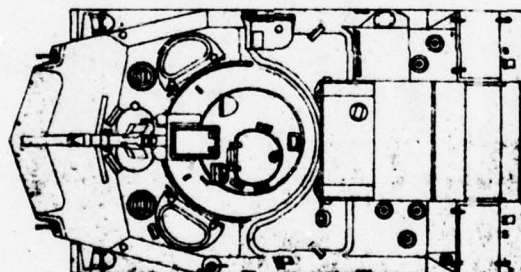
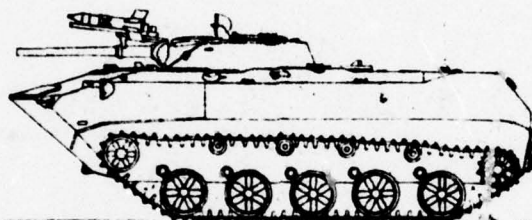
- |                                    |                                 |
|------------------------------------|---------------------------------|
| 1. Swim Trimvanes                  | 14. POL Level Check Access      |
| 2. Bow 7.62mm MGs                  | 15. Foot hold louvers           |
| 3. Dr's IR Light                   | 16. Radio Antenna Mount         |
| 4. Dr's Hatch W/Vision Blocks      | 17. POL Level Check Access      |
| 5. Squad Member's Hatch            | 18. Air Intake -CBR System      |
| 6. SAGGER Loading Hatch            | (not present on all BMDs)       |
| 7. Dr's Aux IR Light               | 19. Firing Port Vision Block    |
| 8. Gnr's Sight Head W/Blast Screen | 20. Possible Bilge Pump         |
| 9. Gnr's Hatch W/Vision Blocks     | 21. Squad Firing Ports (2)      |
| 10. Squad Firing Ports (2)         | 22. CBR Sensor Housing          |
| 11. Exhaust/Smoke Port             | * 23. Vehicle Commander's Hatch |
| 12. Firing Port Vision Block       | 24. Side Marker Lights          |
| 13. Main Troop Compartment Hatch   | 25. Trimvane Dr's Hatch         |
| (also serves as a fuel cell)       | 26. Moveable vision blocks      |
|                                    | for the bow MGs                 |

Note: Turret armament removed for clarity.

\* See: Pictures in Voenyi Vestnik  
#5, 1976, p. 35 and 37

#7, 1975, p. 43.

APPENDIX 3, Additional Views of the BMD



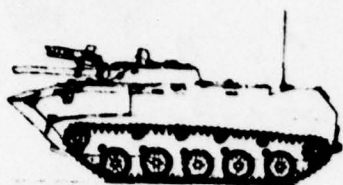
Front View

Rear View--note  
the twin hydro-  
jet propulsion  
system.



# APPENDIX 4, Squad, Platoon, and Company

## SOVIET AIRBORNE RIFLE COMPANY (BMD)



COMPANY HQS SQUAD



CPT, CO  
Pistol



LT  
Rear Svc  
Political  
Pistols



NCO  
ISGT  
AKMS



EM  
Dvr  
Pistol



EM  
Gnr/  
BMD  
AKMS



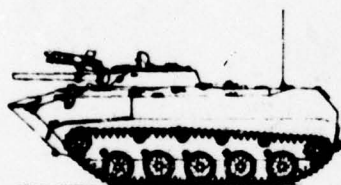
EM  
PKM



EM  
AKMS



## SOVIET AIRBORNE RIFLE PLATOON (BMD)



1st SQUAD



LT  
Plt Ldr  
AKMS



NCO  
Sq Ldr  
AKMS



EM  
Sniper  
SVD



EM  
Dvr  
Pistol



EM  
BMD/  
Gnr  
AKMS



EM  
PKM



EM  
AKMS



EM  
RPG-7  
AKMS



2nd SQUAD



NCO  
Sq Ldr  
AKMS



EM  
BMD Dvr  
Pistol



EM  
BMD Gnr  
AKMS



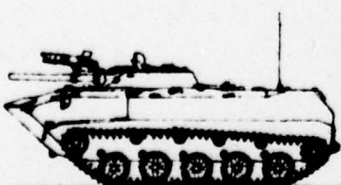
EM  
RPG-7  
AKMS



EM  
PKM



EM  
AKMS



3rd SQUAD



NCO  
Plt Sgt  
AKMS



NCO  
Sq Ldr  
AKMS



EM  
SA-7  
AKMS



EM  
Dvr  
Pistol



EM  
BMD/  
Gnr  
AKMS



EM  
PKM



EM  
AKMS



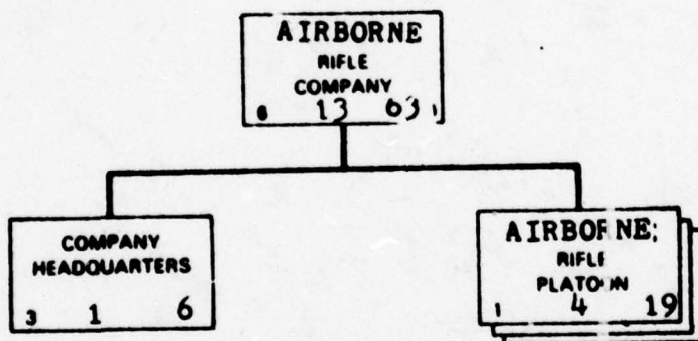
EM  
RPG-7  
AKMS

Based on: MOSA, FM 30-40 and 30-102, TC 30-102, and TRADOC Threat Force Guidance, 30 Aug 76.

# APPENDIX 5. Company Organization



## SOVIET AIRBORNE COMPANY (BMD)



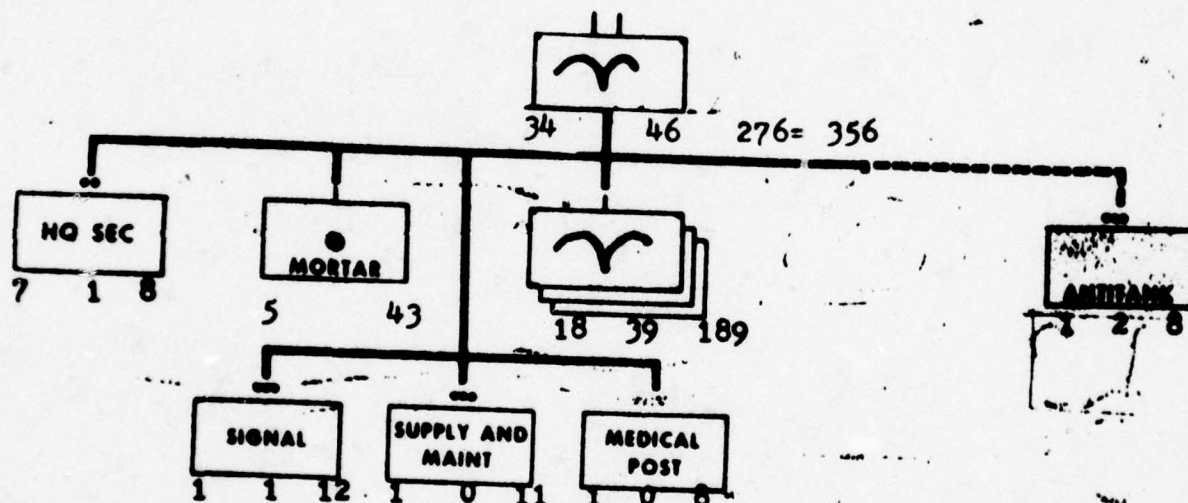
### EQUIPMENT

8mm pistol, PM	16
7.62mm rifle, AKM	50
7.62mm sniper rifle, SVD	3
7.62mm GP machinegun, PKM	13
Antitank grenade launcher, RPG-7	3
SAM, (SA-7) GRAIL (gripstock)	10
Armored personnel carrier, BMD	10
Refrs: R-105/R-107	10
R-113/R-123	4
R-128	

Based on: MOSA, FM 30-40 and 30-102, TC 30-102, and TRADOC Threat Force Guidance, 30 Aug 76.

# APPENDIX 6, BMD Battalion Organization and Equipment

## SOVIET AIRBORNE BATTALION (BMD)



### KEY EQUIPMENT

#### ARMORED VEHICLES:

Airborne combat vehicle, BMD

31

#### ARTILLERY:

120-mm mortar, M1943

6

#### ANTIAIRCRAFT:

SA-7

9

#### ANTITANK:

73-mm recoilless gun, SPG-9

2

Antitank grenade launcher, RPG-7

27

Antitank guided missile (manpack) AT-3 (SAGGER)

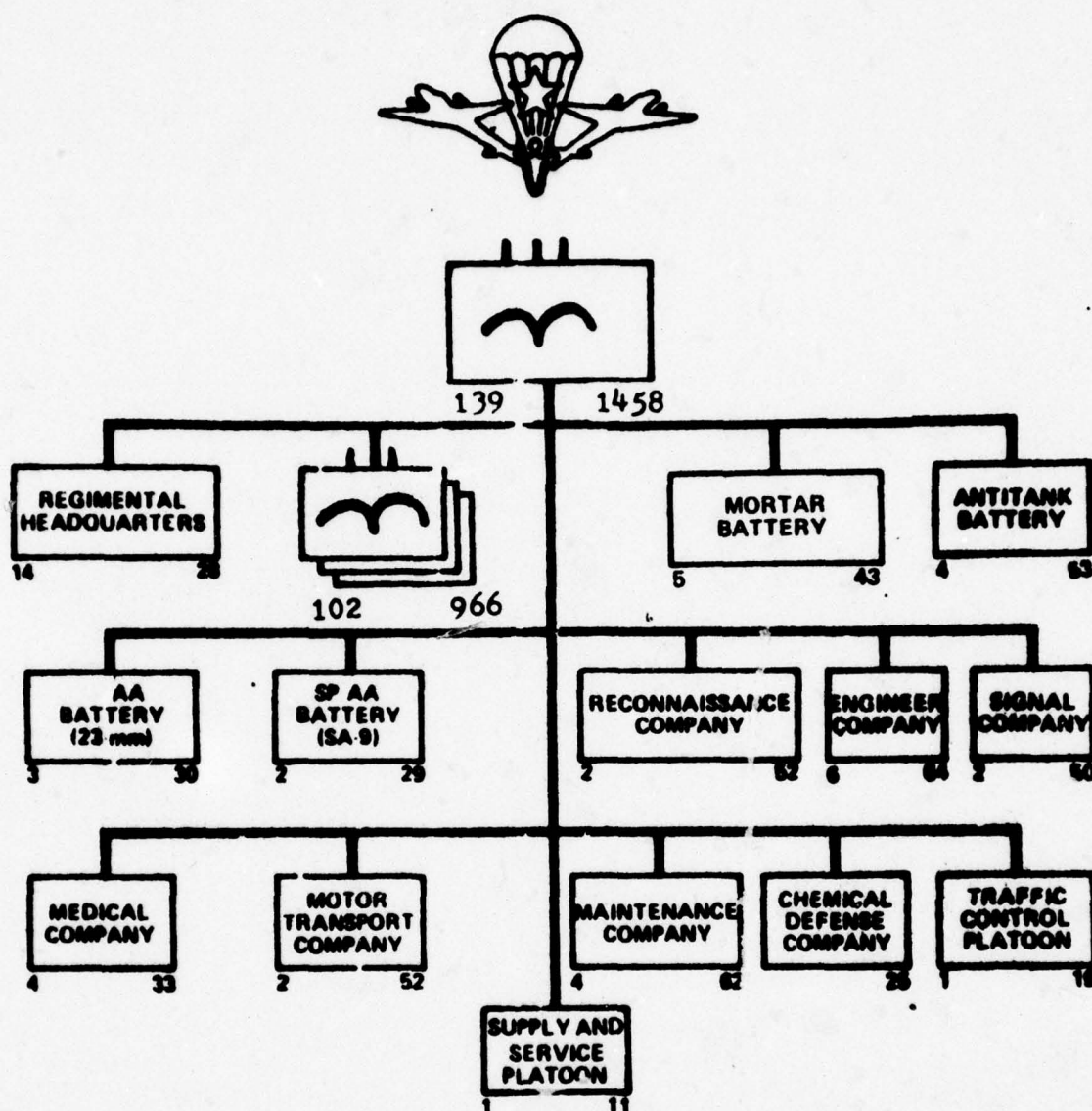
2

Based on: TC 38-102, FM 30-40 and 38-102, and MOSA.



APPENDIX 7, Regimental Organization and Equipment

SOVIET AIRBORNE REGIMENT (BMD)



KEY EQUIPMENT

ARMORED VEHICLES:

Airborne combat vehicle, BMD	107
Armored vehicle, BRDM	3

ARTILLERY:

120-mm mortar, M1943	6
----------------------	---

ANTI-AIRCRAFT:

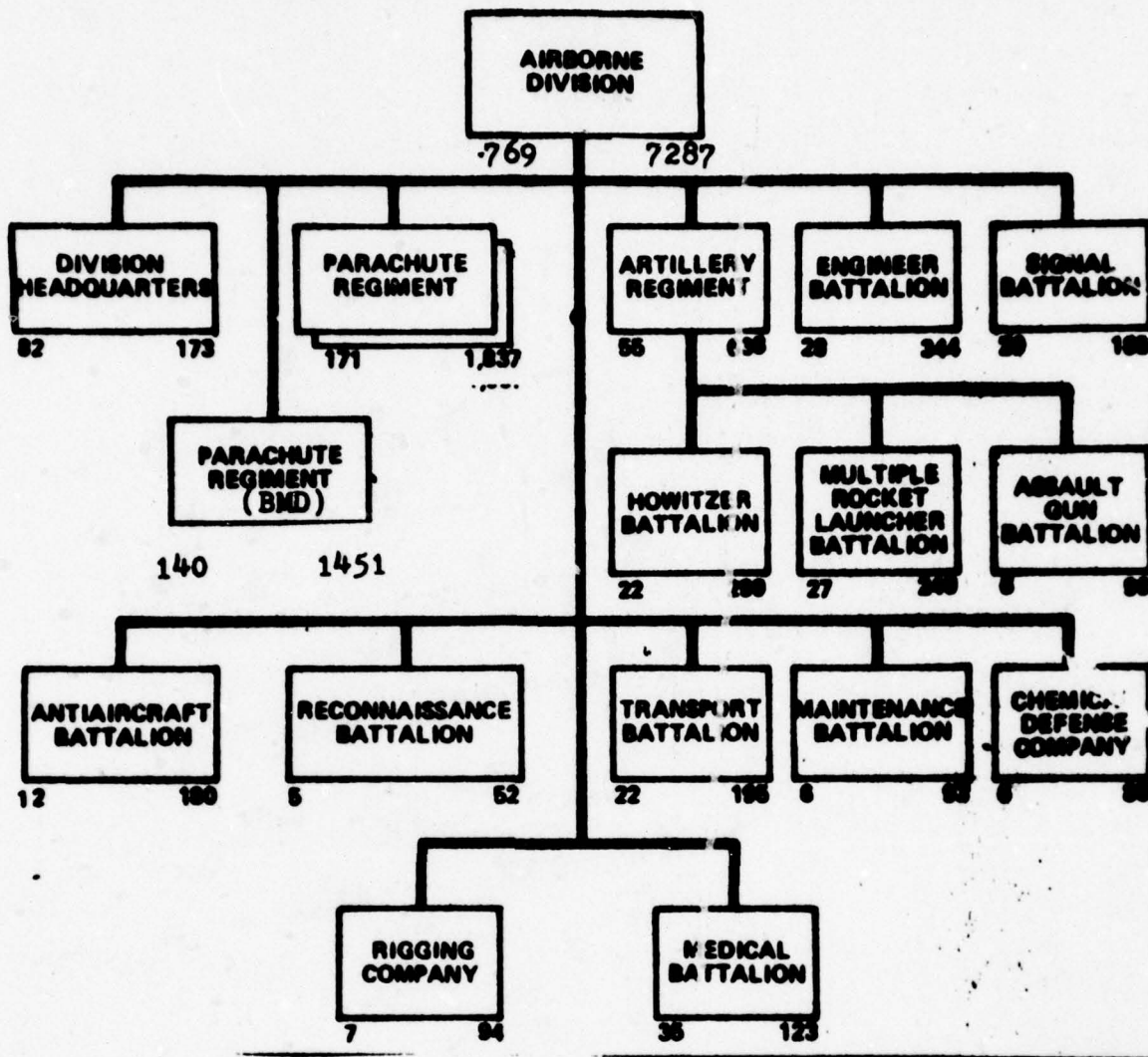
23-mm anti-aircraft gun, ZSU-23-2	4
SA-9 (GASKIN) missile system	4
SA-7	38

ANTITANK:

73-mm recoilless gun, SPG-9	6
Antitank grenade launcher, RPG-7	81
Antitank guided missile (manpack) AT-3	8
Antitank missile launcher vehicle, BRDM, AT-2/3 (SAGGER)	9

Based on: MOSA, FM 30-40 and 30-102, TC 30-102, and TRADOC Threat Force Guidelines, 30 Aug 76.

SOVIET AIRBORNE DIVISION (with a BMD regiment)

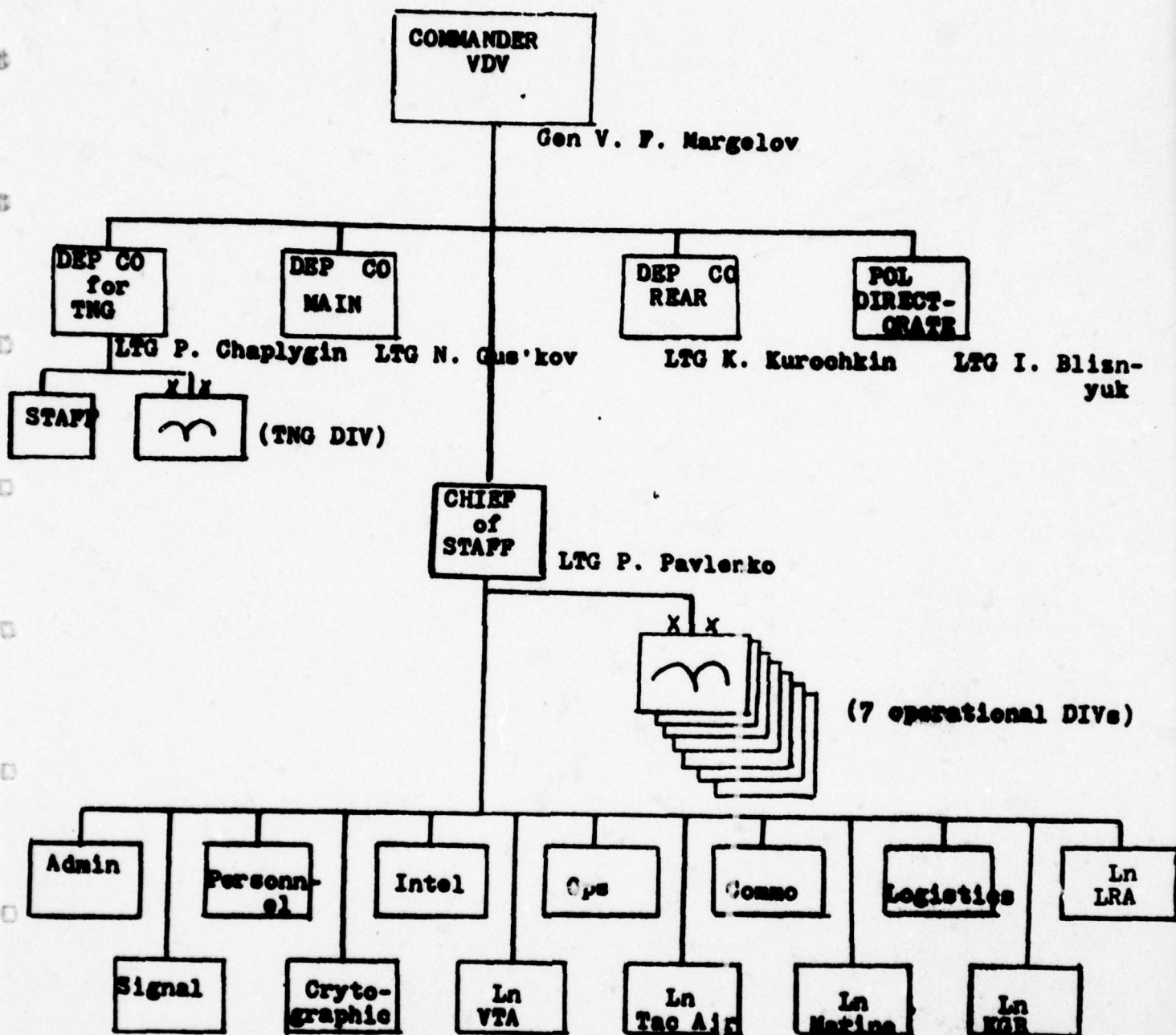


KEY EQUIPMENT

<b>ARTILLERY:</b>		
122-mm howitzer, D-30		18
120-mm mortar, M1943		18
Multiple rocket launcher, BM-21		18
<b>ANTIAIRCRAFT:</b>		
23-mm antiaircraft gun, ZU-23		28
<b>ANTITANK:</b>		
82-mm assault gun, ASU-57/85		28
85-mm APAT gun, SD-44		18
Antitank guided missile (manpack), AT-3 SAGGER		27

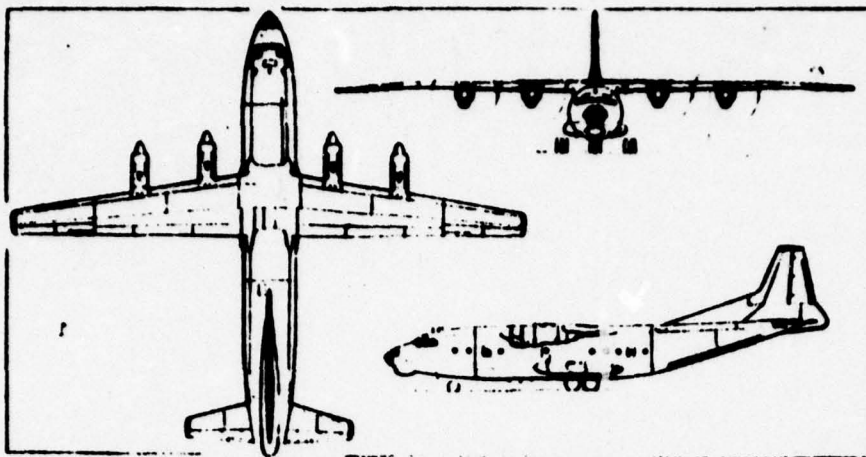
Based on: MOSA and FM 30-40 and 30-102.

# APPENDIX 9, Organization of VDV



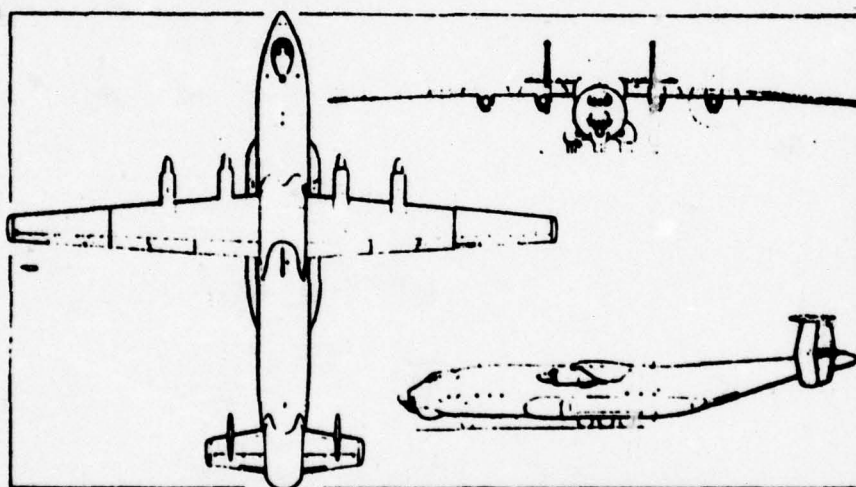


# APPENDIX 10, Soviet Airlift Aircraft



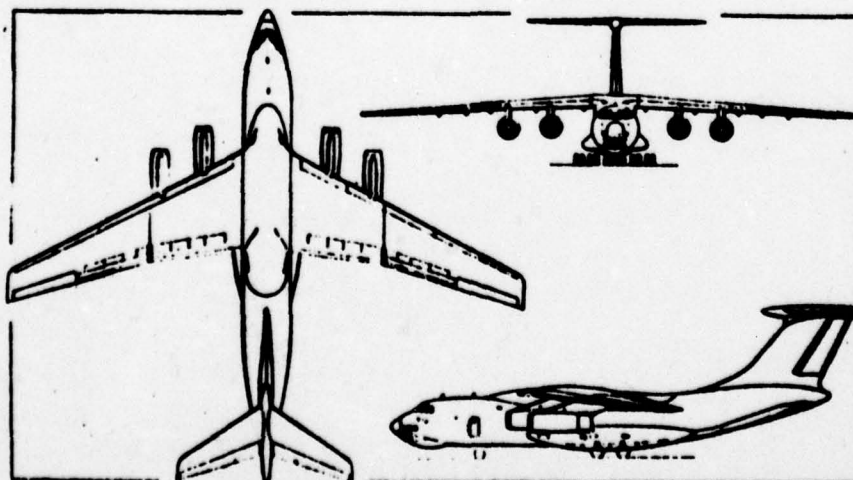
Antonov An-12 four-turboprop general-purpose commercial transport aircraft

# of Acft	Name	NATO Code Name	Troop Lift	BMD Lift	Cargo Lift
780	AN-12	Cub	80	2	44,000 Lbs.



Antonov An-225 Antheus long-range heavy transport aircraft

50	AN-22	Cock	300	4	160,000 Lbs.
----	-------	------	-----	---	--------------



Myasishin M-76 four-turboprop heavy freight-carrying transport

35	IL-76	Candid	150	3	80,000 Lbs.
----	-------	--------	-----	---	-------------

Note-- BMD lift based on cargo compartment size or observer reports. See footnote #63

# **APPENDIX 11, Comparison of US and Soviet Airborne Personnel and Equipment**

<u>US</u>	<u>USSR</u>
<b>Personnel:</b> 20,000 (82d Abn. Div., Ranger Bns., S.F., and seperate Abn. Bns.)	58,000 (8 Divs. plus a number of special purpose Bns.)
<b>Equipment:</b>	
(Anti-tank) M551 Sheridan (airland) TOW Dragon LAW	ASU-85 (airland) BMD SAGGER SPG-9 RPG-7
(Artillery) M102(105mm Howitzer)	D-30 (122mm Gun/Howitzer) RPU-14(140mm Multiple Rocket Launcher)
(Mortars) 81mm	120mm
(Air Defense) VULCAN REDEYE CHAPARRAL (Possible air- land)	ZSU 23-2 GRAIL (SA-7) GASKIN (SA-9) (airland) GANE? (SA-4) (Possible airland)*
(Nuclear Cap) ?	FROG (airland)*

\*NOTE-- Open source photos have shown both the FROG and the SA-4 with airborne markings, but it is doubtful these weapons are organic to the division.

#### FOOTNOTES

<sup>1</sup>K. E. Voroshilov, Stat'i i rechi (Articles and Speeches), (Moskva: Voenizdat, 1953), p. 634.

<sup>2</sup>Gen. V.F. Margelov, Comments, Soviet Military Review, May 1973, p. 3.

<sup>3</sup>Graham H. Turbiville, "Soviet Airborne Forces: Increasingly Powerful Factor in the Equation," Army Magazine, April 1976, pp. 18-19.

<sup>4</sup>Col. M. Belov, "Vertolety v Bor'be s Tankami" (Helicopters in Antitank Warfare), Voennyi Vestnik, February 1974, pp. 124-126.

Col. M. Belov, "Puti Povysheniia Boevoi Effektivnosti Vertoletov" (Areas of Improvement of the Combat Efficiency of Helicopters), Voennyi Vestnik, April 1975, pp. 117-119.

Col. M. Belov, "Air Mobilization of Modern Armies," Soviet Military Review, October 1975, pp. 13-15.

Col. M. Belov, "Helicopters Used by Ground Troops," Soviet Military Review, April 1976, pp. 30-34.

Col. M. Belov, "Helicopters and Land Forces Tactics," Soviet Military Review, December 1976, pp. 22-24.

<sup>5</sup>I. I. Lisov, "Desantniki" (Airborne Soldiers), (Moskva: Voenizdat, 1968), p. 29.

<sup>6</sup>G. N. Pakilev, "Sovetskaya Voennaya Transportnaya Aviatsiya" (Soviet Military Transport Aviation), (Moskva: Voenizdat, 1974), p. 11.

<sup>7</sup>John Milsom, Russian Tanks 1900-1970, (New York City: Galahad Books, 1970), p. 83.

Also see: H. G. Andronkov, et al., Bronetankovye i Mekhanizirovannye Voiska Sovetskoi Armii (Armored Tanks and Mechanized Forces of the Soviet Army), (Moskva: Voenizdat, 1958), pp. 13-48.

<sup>8</sup>Ibid., p. 91.



<sup>9</sup>Staff Report, "Luftlande-panzer" (Airlandable Tank), ARMEERUNDSCHAU Magazine, (E. Berlin: MOD GDR), (#2 1977), p. 41.

<sup>10</sup>Milson, p. 91.

Also see: "Sovetskaya Voennaya Entsiklopediya" (Soviet Military Encyclopedia). Vol. II, (Moskva: Voenizdat, 1976), p. 288.

<sup>11</sup>Staff Report, p. 41.

<sup>12</sup>G. P. Sofrolov, "Vozdushnye Desanty vo Vtoroi Mirovoi Voine" (Airborne in WW II), (Moskva: Voenizdat, 1962), p. 10.

<sup>13</sup>Milson, p. 95.

<sup>14</sup>Milson, pp. 95-96.

<sup>15</sup>E. A. Kosyrev, et al., "Tanki" (Tanks), (Moskva: DOSAAF, 1973), pp. 58-79.

<sup>16</sup>A Staff Study, "Soviet Airborne Forces," Aerospace International, (March/April 1973), p. 13.

Also see: J. L. Moulton, "Seaborne and Airborne Mobility in Europe," US Naval Proceedings, May 1974, p. 128.

<sup>17</sup>HQ USAREUR, Identification Guide (Part I), Vol. III "Armored Vehicles, Tanks and Self-propelled Artillery," 15 February 1973, p. 198.

<sup>18</sup>K. Erhart, "Kampfmaschine der Fallschirmjäger" (Combat Machine for the Airborne), ARMEERUNDSCHAU Magazine, (E. Berlin: MOD), #5 1977, p. 48.

<sup>19</sup>Milson, p. 269.

Also see: "Boevaya Mashina Desantnikov" (Airborne Combat Vehicle), Starshina Serzhant, (September 1972), pp. 21-22.

<sup>20</sup>Ibid., p. 270.

<sup>21</sup>Christopher Donnelly, "The Soviet Ground Forces," The Soviet War Machine, Ed., by Ray Bonds, (London: Salamander Books), 1977, p. 183.

<sup>22</sup>P. Rudenko, "Kontrol' Tekhnicheskogo Sostoiianiia BMD" (Control of the Technical Status of the BMD), Tekhnika i Vooruzhenie, (#12, 1977), p. 29.

<sup>23</sup>Ibid., p. 183.

<sup>24</sup>Fred Schreier, "Tracks or Wheels for Infantry Combat Vehicles," International Defense Review, (February 1977), p. 327.

<sup>25</sup>Report, "Luftlandepanzer" (Airlandable Tank), Soldat und Technik, (October 1975), p. 511.

Also see: Steven Korda, "Neobichne Bortene Masine" (New Military Machine), Front, 21 June 1974, p. 31.

<sup>26</sup>Friedrich Wiener and William Lewis, The Warsaw Pact Armies, (Vienna: Carl Ueberreuter Publishers), 1977, p. 263.

<sup>27</sup>U. S. Army Training and Doctrine Command, Bulletin #1 "Range and Lethality of U.S. and Soviet Anti-armor Weapons", (Ft. Monroe, Va: TRADOC), 30 September 1975, p. 11.

<sup>28</sup>Picture, Militaer Technik, (E. Berlin: GDR MOD), November 1977, Cover page.

Also see: U. S. Army Training and Doctrine Command, "Soviet Equipment Recognition Guide," Training Circular #30-3, (Ft. Monroe, Va: TRADOC), 11 April 1975, p. 36.

Picture, Soviet Military Review, March 1975, p. 19.

<sup>29</sup>F. M. Von Senger and Etterlin, "Taschenbuch der Panzer 1976" (Pocket Book for Tanks 1976), (W. Germany: Bernard and Graefe), 5 January 1976, p. 474.

<sup>30</sup>Picture, Znamenosets, November 1977, p. 13.

Picture, Znamenosets, June 1977, p. 17.

<sup>31</sup>Staff Study, Aerospace International, p. 11.

Also see: Kenneth J. Strafer, "The Soviet Threat to Corps General Support Centers", Army Logistician, July-August 1977, p. 8.

<sup>32</sup>The International Institute for Strategic Studies, The Military Balance, 1976/1977, p. 8.

<sup>33</sup>Wiener and Lewis, p. 79.

<sup>34</sup>Staff Study, Aerospace International, p. 11.

<sup>35</sup>The Soviets in 1972 were credited with sufficient airlift for three divisions (one lift) for a distance of 1000 kilometers.

See: Military Notes (source cited as ASMZ, 1972, Switzerland), Military Review, April 1973, p. 100.

Wiener and Lewis, p. 98 and p. 151.

<sup>36</sup>William Gooch, USA Foreign Science and Technology Center, letter to the author 7 November 1977.

<sup>37</sup>USA Infantry School, "Opposing Forces Handbook," ST 7-288, FY 1977, Appendix 7.

<sup>38</sup>A survey of recent US and Soviet exercises and writings seems to indicate a growing preference for brigade/regimental sized initial assault employment. For example, see:

Charles K. Taylor, "Soviet and Warsaw Pact Exercise-1976 KAVKAZ-SEVER-SHCHIT-76," Defense Intelligence Report, (DIA April 1977), pp. 1-29.

Robert M. Elton, "The Airborne Division in the 1970s," Army Magazine, (September 1972), pp. 16-21.

Department of the Army, FM 30-40, (US Government Printing Office: Washington, DC), 30 June 1975, pp. 6-37.

<sup>39</sup>Erhart, pp. 48-49.

<sup>40</sup>Based on the size of the dismount party (six airborne troops) per BMD, one can extrapolate from the type weapons carried by the BMP squad. The following sources support these conclusions:

a. I. Zuev, "Manevr Obespechivaet BMD" (BMD Ensures Maneuver), Voennyi Vestnik, (February, 1976), pp. 85-89.



- b. A. Gorbachev, "Upravlenie Ognem BMD" (BMD Fire Control), Znamenosets, May 1976, pp. 4-6.
- c. B. Dediukhin and G. Kuveetanov, "Rota v Zasade" (Company in Ambush), Voennyi Vestnik, January 1976, pp. 46-48.
- d. I. Kononov, "Kogda Desant Atakuiut Tanki" (When Tanks Attack a Landing Force), Voennyi Vestnik, March 1977, pp. 57-60.
- e. K. Kononov, "Komplekse s Taktekoi" (Integrated with Tactics), Znamenosets, August 1977, pp. 12-13.
- f. V. Grechnev, "Sovershenstvua Taktichnuiu Vyuchku" (Improving Tactical Training), Voennyi Vestnik, December 1977, pp. 74-77.
- g. V. Smetannikov, "Udar iz Zasady" (Strike from Ambush), Voennyi Vestnik, October 1976, pp. 51-52.
- h. K. Tikhomirov, "V Tylu Protivnika" (In the Enemy's Rear), Znamenosets, April 1976, pp. 22-23.
- i. N. Bakhtin, "Boevaia Strel'ba Vzdala na BMD" (Platoon Combat Fire from the BMD), Voennyi Vestnik, May 1976, pp. 43-46.
- j. I. Zuev and I. Balakirev, "V Bor'be za Effektivnost' Strel'by" (In the Struggle for Effective Fires), Voennyi Vestnik, August 1976, pp. 55-57.
- k. G. Bondarenko, "Otrazhaia Ataki s Neba" (To Repel an Assault from the Sky), Voennyi Vestnik, February 1977, pp. 59-61.
- l. N. Semenov, "Cherez Trudnye Barery" (Through Difficult Barriers), Voennyi Vestnik, November 1976, pp. 38-40.
- m. R. Salikhov, "V Zasade Desantniki" (Airborne in Ambush), Znamenosets, December 1977, pp. 12-13.
- n. V. Dregval, "Parashiutno-desantnaia Rota Zakhvatyvaet Ob'ekt v Gorakh" (Parachute-assault Company Seizes an Objective in the Mountains), Voennyi Vestnik, April 1977, pp. 76-76.
- o. R. Salikhov, "Parashiutno-desantnyi Vatal'on Deistvuet Noch'iu" (Parachute-assault Battalion Operates at Night), Voennyi Vestnik, June 1977, pp. 64-67.

p. The pictures from the following sources were also used to postulate the size and type of weapons organic to the squad through battalion organizations.

- (1) Pictures, Krasnaia Zvezda, 11 April 1975, p. 2.
- (2) Picture, Krasnaia Zvezda, 30 June 1977, p. 1.
- (3) Picture, Krasnaia Zvezda, 11 July 1976, p. 2.
- (4) Picture, Krasnaia Zvezda, 11 March 1975, p. 1.
- (5) Picture, Krasnaia Zvezda, 8 March 1977, p. 2.
- (6) Picture, Krasnaia Zvezda, 26 January 1977, p. 1.
- (7) Picture, Krasnaia Zvezda, 5 August 1977, p. 1.
- (8) Picture, Krasnaia Zvezda, 3 July 1977, p. 2.
- (9) Picture, Krasnaia Zvezda, 2 July 1977, p. 1.
- (10) Picture, Voennyi Vestnik, November 1976, p. 39.
- (11) Picture, Krasnaia Zvezda, 30 January 1977, p. 1.
- (12) Cover Picture, Soviet Military Review, September 1977.
- (13) Picture, Soviet Military Review, February 1977, p. 41.
- (14) Pictures, Soviet Military Review, May 1977, pp. 32-33.
- (15) Pictures, Znamenosets, June 1977, p. 7.
- (16) Pictures, Sovetskii Voin, #22, 1977, p. 1 and pp. 37-41.
- (17) Pictures, ARMEERUNDSCHAU, February 1977, pp. 46-49.

<sup>41</sup>HQ TRADOC, "The Motorized Rifle Company," TRADOC Training Circular 30-102, Fort Monroe: Va, 25 September 1975.

<sup>42</sup>A survey of articles on tactical employment of the BMD in the open Soviet press indicates that the driver-mechanic and the gunner remain mounted under all circumstances when the remainder of the squad dismounts. For an example see: I. Zuev, "BMD Ensures Maneuver," Voennyi Vestnik, February 1976, sketches on pp. 86-88 and text.

<sup>43</sup>TRADOC TC30-102, p. 9.

<sup>44</sup>Ibid., p. 8.

<sup>45</sup>Ibid., p. 9.

<sup>46</sup>The following sources (in addition to those listed in note #40) were used to determine the organization of the Soviet airborne battalion equipped with the BMD:

a. Donnelly, p. 160.

b. Guenter Scheele, "The Development of Airborne Troops in the Warsaw Pact," Kampftruppen, March 1975, pp. 135-137.

c. I. I. Kushch, "Rear Service Support for Sub-units in Combat," Joint Publications Research Service (JPRS): Virginia, (16 August 1974), pp. 1-12.

d. Weiner and Lewis, p. 78.

e. Department of the Army, "Handbook on Soviet Ground Forces," FM 30-40, (30 June 1975), Appendix A, P. A-6.

f. CACDA, "Organization and Equipment of the Soviet Army," HB 550-2, (Concepts and Force Design Directorate: Fort Leavenworth, Kansas), 1 December 1976.

g. A. Oleinik, "Derzkaia Ataka" (Audacious Attack), Voennyi Vestnik, November 1975, pp. 65-66.

h. CACDA, "Soviet Logistics," HB 550-3, (Fort Leavenworth, Kansas), 1 August 1977.

i. M. Muslimov, "Forsirovanie Reki : Khodu" (Forcing a River on the Move), Voennyi Vestnik, December 1975, pp. 59-61.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid.

<sup>49</sup> Weiner and Lewis, p. 78.

<sup>50</sup> Donnelly, p. 160.

<sup>51</sup> US Central Intelligence Agency (CIA), "Directory of USSR Ministry of Defense and Armed Forces Officials" #CR 76-14079, (Washington, DC: US Government Printing Office), September 1976, p. 21.

Also see: S. N. Kozlov, Spravochnik Ofitsera (Reference Book for Officers), (Moskva: Voenizdat, 1971), pp. 127-137.

<sup>52</sup> Turbiville, p. 20.



Also see: "Soviet War Machine," p. 32.

E. Van Veen, "Soviet Paratroopers," Military Spectator, Royal Dutch Air Force and Army, #5, 1972, p. 10.

USA Intelligence Center and School, "Handbook on the Soviet Ground Forces," (Fort Huachuca, Arizona, August 1976), p. 79.

<sup>53</sup> CIA, p. 21.

<sup>54</sup> Ibid., pp. 17-26.

<sup>55</sup> M. A. J. Tugwell, "Day of the Paratrooper," Military Review, March 1977, p. 51.

<sup>56</sup> V. F. Margelov, "Na Novykh Rubezhakh" (On New Frontiers), Znamenosets, (August 1975), p. 2.

<sup>57</sup> G. P. Pakilev, pp. 38-48.

<sup>58</sup> John W. R. Taylor, "Jane's Aircraft of the World 1975-76," pp. 481-482.

<sup>59</sup> John F. Loosbrock, "The Military Balance 1977/78," Air Force Magazine, December 1977, p. 70.

<sup>60</sup> Ibid.

<sup>61</sup> Jane's, pp. 483-484.

<sup>62</sup> Jane's, pp. 492-493.

<sup>63</sup> Graham H. Turbiville, "Articles of Interest," Military Review, September 1976, p. 31.

<sup>64</sup> US Air Force, Military Balance, p. 70.

<sup>65</sup> Soviet War Machine, p. 86.

<sup>66</sup> A. V. Margelov, "Desantnyi Kharakter" (Airborne Character), Sovetskii Voin, (February 1973), p. 3.

<sup>67</sup>USA Intelligence Threat Analysis Detachment (USAITAD), "Military Operations of the Soviet Army," USAITAD Report #14-U-76, 25 May 1976, p. 188.

<sup>68</sup>Moulton, p. 140.

<sup>69</sup>Joseph Alsop, "Russia's Role in the Mideast War," Washington Post, 19 October 1973, p. 2.

\_\_\_\_\_, "Gravity of the Mideast Crisis," Washington Post, 29 October 1976, p. 2.

<sup>70</sup>Brian Jenkins, et al., "US Preparation for Future Low-Level Conflict," The Rand Paper Series, (Santa Monica, CA: Rand Corporation, July 1976), p. 15.

<sup>71</sup>George Wilson, Washington Post, 27 October 1973, p. 2.

<sup>72</sup>USAITAD Report, #14-U-76, p. 188.

<sup>73</sup>Ibid.

<sup>74</sup>I. Zuev, p. 87.

<sup>75</sup>For examples of these type operations and the associated tactics see the following:

a. I. Zuev, pp. 85-89.

b. A. Gorbachev, pp. 4-6.

c. I. Kononov, pp. 12-13.

d. I. Kononov, pp. 57-60.

e. N. Bakhtin, pp. 43-46.

f. V. Dregval, pp. 74-77.

g. N. Tikhomirov and A. Panasenko, pp. 51-53.

h. A. Khorobrykh, "Airborne Troops Capture a Bridgehead," Soviet Military Digest, April 1976, pp. 24-25.

i. A. Bundyukov, "Attack on the Airfield," Soviet Military Review, October 1976, pp. 26-27.

j. P. Salikhov, pp. 64-67.

k. P. Salikhov, pp. 12-13.

l. N. Tukhomirov, pp. 22-23.

m. V. Grechnev, "Sovershenstvuiia Takticheskuiu Vyuchku," (Improving Tactical Training), Voennyi Vestnik, December 1977, pp. 74-76.

n. G. Kuvitanov and V. Dediukhin, "Rota v Zasade" (Company in Ambush), Voennyi Vestnik, January 1976, pp. 46-48.

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.

<sup>78</sup> USAITAD Report #14-U-76, p. 188.

<sup>79</sup> Ibid.

<sup>80</sup> Note: The figures are based on the 107 BIDs assigned to the regiment (source footnote #37). Strength figures for the regular airborne regiment are taken from sources listed in footnotes #37 and #26.

<sup>81</sup> Robert Hotz, "Ominous Soviet Trends," Aviation Week, 38 June 1976, p. 9.

<sup>82</sup> V. Pepelin, "Tyl Desanta: Zadachi i Resheniia" (Rear Services for an Assault Landing Force -- Tasks and Decisions), Voennyi Vestnik, March 1975, p. 64.

<sup>83</sup> Major Edward A. Corcoran, "Support Troops in Combat Operations in Europe," Army Logistician, January-February 1978, pp. 19-23.



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